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# Massive gravitons in arbitrary spacetimes

Mazuet C., Volkov M.
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

## Abstract

© 2017 American Physical Society. We present two different versions of the consistent theory of massive gravitons in arbitrary spacetimes which are simple enough for practical applications. The theory is described by a nonsymmetric rank-2 tensor whose equations of motion imply six algebraic and five differential constraints, reducing the number of independent components to five. The theory reproduces the standard description of massive gravitons in Einstein spaces. In generic spacetimes it does not show the massless limit and always propagates five degrees of freedom, even for the vanishing mass parameter. We illustrate these features by an explicit calculation for a homogeneous and isotropic cosmological background. We find that the gravitons are stable if they are sufficiently massive, hence they may be a part of dark matter at present. We also discuss other possible applications.

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